RTOFS Atlantic FY15 Upgrade

Kick off and EE Coordination with NCO
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Outline

- Quad Chart
- Current status of v2.5
- Upgrades for v3.0
- V3.0 model run setup
- Workflow details and resources
- Product and disk resources

RTOFS Atlantic V3.0.0
Project Status as of 2/23/2015

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Project Information and Highlights

Lead: Hendrik Tolman, EMC and Becky Cosgrove, NCO

Scope: .
1. New initialization with upgrades to source codes.
2. Improved data assimilation algorithms for SSH, and sub-surface profiles.
3. Vertical/Equivalent Implementation.

Expected Benefits:
1. Improved robust nowcasts/forecasts for the Atlantic Basin.
2. Vertical environment.
3. Better aligned with RTOFS Global.

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Scheduling

Milestone (NCEP)	Date	Status
Initial EE setup (NCO Support)	1/31/2015	
EMC testing complete/ EMC CCB approval	12/08/14 → 4/27/2015	
Code delivered to NCO	12/15/14 → 4/28/2015	
Technical Information Notice Issued	2/01/2015 → 4/15/2015	
SPA begins prep work for 30 day test	12/17/2014 → 4/17/2015	
30-day evaluation begins	1/26/2015 → 5/18/2015	
30-day evaluation ends	2/24/2015 → 6/16/2015	
IT testing ends	1/26/2015 → 6/16/2015	
Management Briefing	3/6/2015 → 6/26/2015	
Operational Implementation	3/10/2015 → 6/30/2015	

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Issues/Risks

Issues: WCOSS turn around, lack of access
Risks: WCOSS stability, EE transition
Mitigation: Long term runs on Zeus for tidal calibrations.

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Finances

Associated Costs:

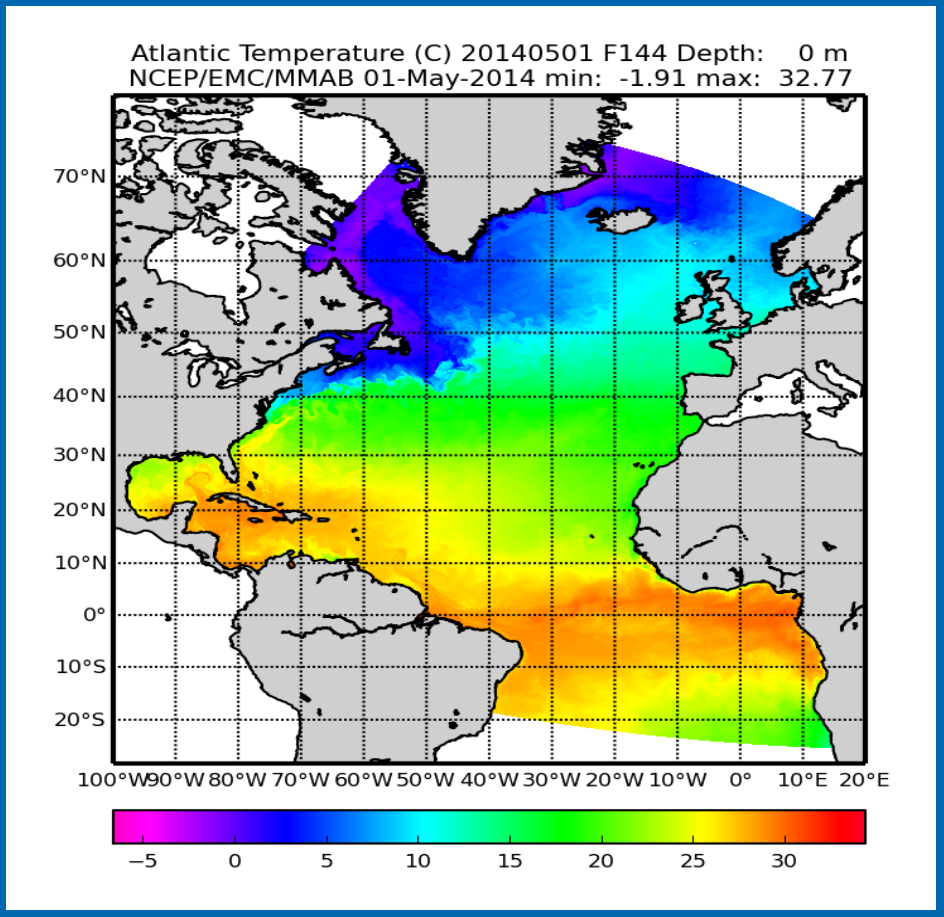
Funding Sources:

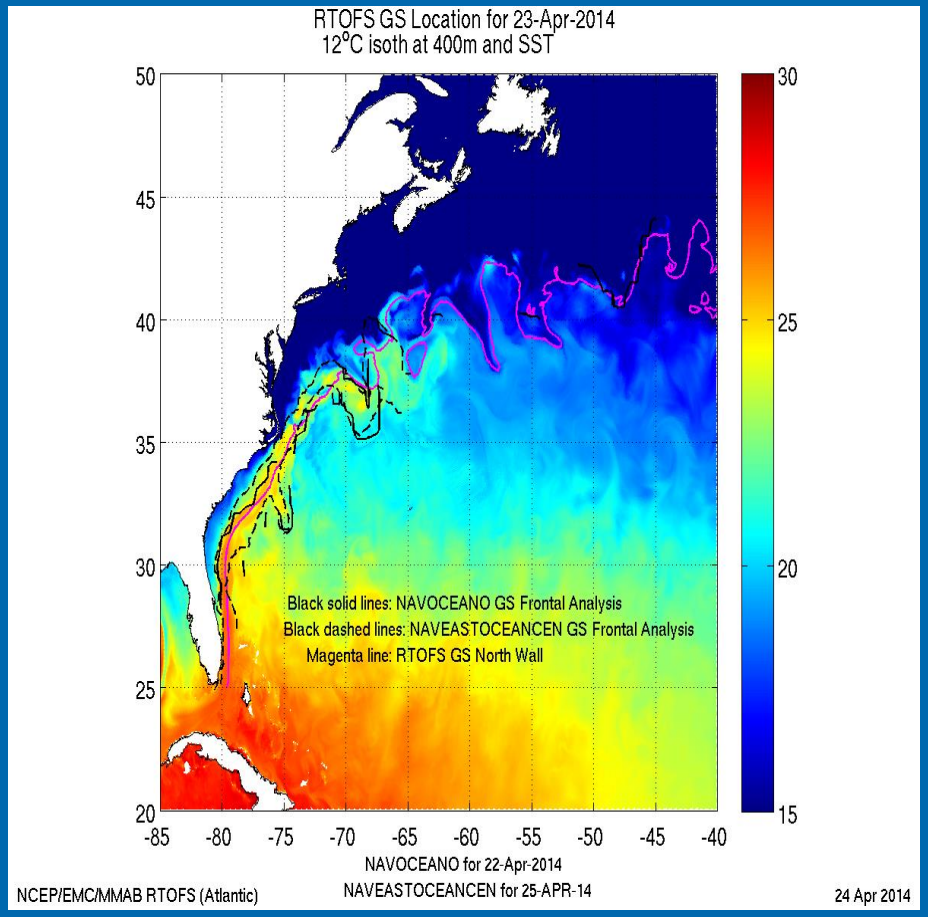
R	Management Attention Required	Y	Potential Management Attention Needed	G	On Track

Current Status v2.5.0

- Current version last changed in FY14.
- 1 day nowcast, 6 day forecast run daily at 00Z.
- Data distribution channels:
  - NOMADS (operational)
  - FTP (operational)
  - Deep Archives at NODC

RTOFS Atlantic v2.5.0 (FY 14)

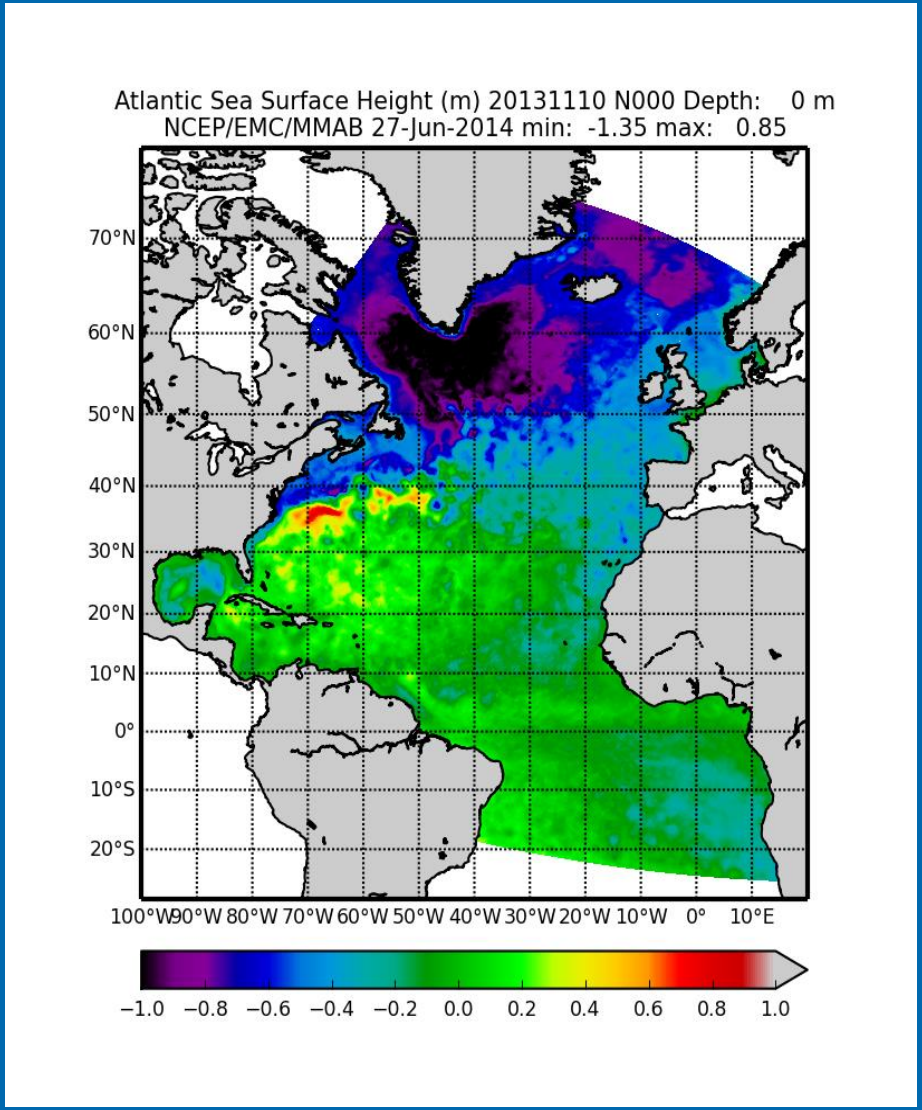




- Updates to relaxation time scales and weights at open boundaries for more robust circulation gyres.
- New initialization from updated climatology.
- Updates to mixed layer model (GISS) for enhanced stability near river mouths.

Science changes for v3.0.0 (FY 15)

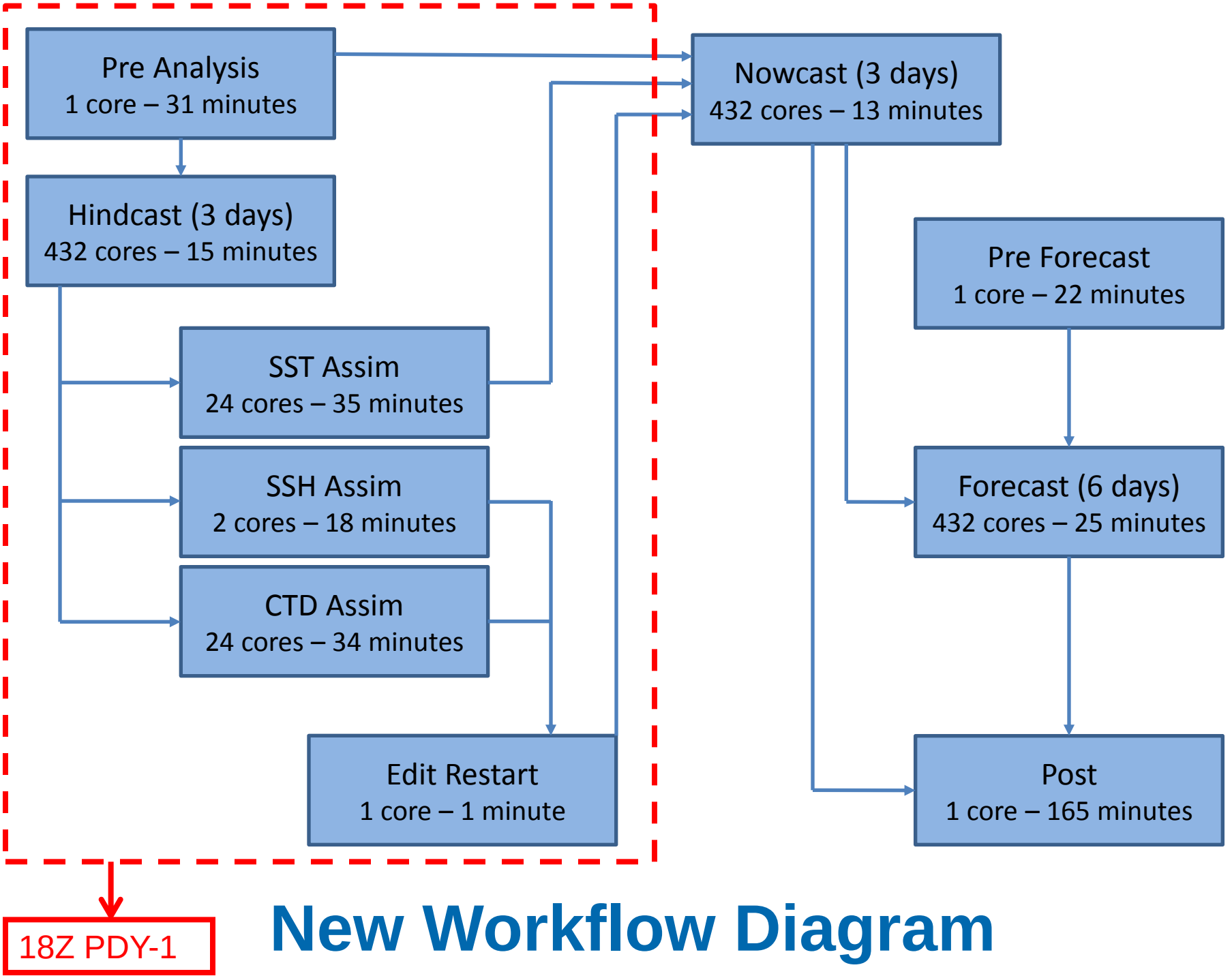
- Update codes to unify with RTOFS Global.
- Improve representation of basin geometry.
- Updates to data assimilation algorithm with new data sets for surface (SST, SSH, SSS).
- Updates to open boundary conditions to prevent drift.
- System upgrade in EE/vertical compliance



New model run setup v 3.0.0

RTOFS-Atlantic runs at 00Z:

- 3 day hindcast (new step)
- 3 day nowcast (vs 1 day forecast for v2.5.0)
- 6 day forecast (same as v2.5.0)



New Workflow Diagram

Typical Job Timings

JOB	Start	End
Pre Analysis	t + 0	t + 31
Hindcast	t + 31	t + 46
SST Assim	t + 46	t + 81
SSH Assim	t + 46	t + 64
CTD Assim	t + 46	t + 80
Edit Restart	t + 81	t + 82
Nowcast	t + 82	t + 95
Pre Forecast	t + 73	t + 95
Forecast	t + 95	t + 120
Post	t + 82	t + 247

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Work flow Details

- The job *dumpmb* needs to be modified (for including new datasets).
- Pre-Forecast can run as late as possible (needs the GFS f147 file) and can finish at the same time as nowcast.
- Post runs in parallel with nowcast and forecast.

Total Disk for /com

Production

JOB	SIZE
SST	500M
SSH	45M
CTD	650M
Update	2.5G
Analysis	13G
Forecast	58G
Post	33G
TOTAL	106G

Parallel

JOB	SIZE
Pre Analysis	12G
Hindcast	37G
SST	1G
SSH	100M
CTD	1.5G
Update	2.6G
Analysis	39G
Pre Forecast	8G
Forecast	72G
Post	41G
TOTAL	214G

Product size on ftpprd/NOMADS

- The total product size will be approximately 30% bigger.
- ftpprd/NOMADS will increase from 8.7G/day now, to approx. 11.3G/day with this upgrade